

REMARKS

In the last Office Action, the Examiner rejected claims 11-14, 16-19 and 21-31 under 35 U.S.C. §103(a) as being unpatentable over applicant's prior art disclosure in Fig. 5 ("APD") in view of U.S. Patent No. 4,880,490 to MacIntyre, U.S. Patent No. 5,910,227 to Mistyurik et al. ("Mistyurik"), U.S. Patent Publication No. 2003/0071051 to Martinsen, and U.S. Patent No. 6,527,026 to Huggins. Claims 15 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over APD, MacIntyre, Mistyurik, Martinsen and Huggins.

In accordance with the present response, independent claims 11 and 26 have been amended to further patentably distinguish from the prior art of record. More specifically, claims 11 and 26 have been amended to recite that the first and second support frames are "detachably" connected to one another. As discussed in detail in the "Traversal of Prior Art Rejections" section of this response, no corresponding structure is disclosed or suggested by the prior art of record.

Claim 23 has been amended to clarify that the print head is supported by the first support frame of the label peeling mechanism. New claims 32-38 have been added to provide a fuller scope of coverage.

Applicant requests reconsideration of his application in light of the following discussion.

Brief Summary of the Invention

The present invention is directed to a label peeling mechanism and to a label printer apparatus having the label peeling mechanism.

Fig. 5 shows a conventional label printer apparatus P having a label peeling mechanism. As described in the specification (pgs. 1-6), the conventional label printer apparatus has a label sheet Y comprised of labels L mounted on a backing strip D and a first conveying unit 10 for conveying the label sheet Y in a direction S1 toward a label peeling member 30 at which point the labels L are peeled from the backing strip D. After the labels L are peeled from the backing strip D, the backing strip D is nipped between the first conveying unit 10 and the second conveying unit 20 and is pulled in a direction S2. A printing unit H prints on a surface of the labels L prior to the label peeling operation.

One problem with the foregoing conventional label printer apparatus is that when the backing strip D is nipped between the first conveying unit 10 and the second conveying unit 20 and is pulled in the direction S2, a skid (i.e., freewheeling) occurs on a peripheral surface of the second

conveying unit 20 which is in slidable contact with the backing strip D. When such skid occurs, a difference is caused between the speed at which the label sheet Y is conveyed in the S1 direction by the first conveying unit 10 and the speed at which the backing strip D is conveyed in the S2 direction by the first conveying unit 10 and the second conveying unit 20. Consequently, slack occurs in the printed label sheet Y between the first conveying unit 10 and the label peeling member 30. As a result of this slack, the labels L are not peeled from the backing strip D and are conveyed with the backing strip D in the S2 direction.

In order to prevent the foregoing label peeling failure, it has been required conventionally to manually pull the end portion of the backing strip D in an S3 direction shown in Fig. 15 to eliminate the slack. Alternatively, a separate mechanism for driving the second conveying unit 20 has been provided to eliminate the slack. However, the manual procedure for removing the slack is time consuming and causes interruptions in the label peeling operation. Furthermore, the addition of the separate mechanism for driving the second conveying unit increases the overall size and manufacturing cost of the conventional label printer apparatus.

Another problem with the conventional label printer apparatus is that it has been difficult to install a roll of

the label sheet in the label printer apparatus and to perform maintenance of the label printer apparatus, particularly during jamming of the label sheet.

The present invention overcomes the drawbacks of the conventional art. Figs. 1-4B show an embodiment of a label printer apparatus having a label peeling mechanism according to the present invention embodied in the claims. In the embodiment shown, the label printing peeling mechanism of the present invention is configured for peeling labels L having a non-adhesive surface and an adhesive surface removably adhered at preselected intervals to a front surface of a backing member D of a continuous label strip Y which is coiled into a roll. The label peeling mechanism has a first support frame 500a, a second support frame 500b detachably connected to the first support frame 500a, and a discharge frame F1 pivotally mounted to the second support frame 500b for undergoing pivotal movement between opened and closed positions thereof (Figs. 2A-2B). The discharge frame F1 has a first discharge opening 610 and a second discharge opening 600. A first conveying unit 10 is mounted on the second support frame 500b for conveying the continuous label strip Y in a first direction S1. A label peeling member 30 contacts a rear surface of the backing member D when the continuous label strip Y is conveyed by the first conveying unit 10 to thereby

peel the labels L from the front surface of the backing member D and convey the peeled labels L towards the first discharge opening 610 of the discharge frame F1. A second conveying unit 20 pulls the backing member D from which the labels L have been peeled in a second direction S2 different from the first direction S1 and conveys the pulled backing member D toward the second discharge opening 600 of the discharge frame F1.

According to the present invention, a slack preventing member 40 integral with the discharge frame F1 effectively suppresses any slack of the continuous label strip Y when the discharge frame F1 is in the closed position. The slack preventing member 40 is disposed opposite to and confronts the non-adhering surface of each of the labels L disposed between the first conveying unit 10 and the label peeling member 30 during conveyance of the continuous label strip Y by the first conveying unit 10 in the first direction S1.

By the foregoing construction, the label peeling mechanism according to the present invention has a slack preventing member which suppresses slack in the continuous label strip and prevents the labels from being conveyed together with the backing member in the second direction. By making the slack preventing member integral with the discharge

frame, slack in the continuous label strip is effectively suppressed without the necessity of providing additional structure for suppressing the slack, as required by the conventional art. Furthermore, by connecting the second support frame to the first support frame in a detachable manner, installation of a roll of the continuous label strip and maintenance of the label printer apparatus in general is facilitated.

Traversal of Prior Art Rejections

Claims 11-14, 16-19 and 21-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over APD, MacIntyre, Mistyurik, Martinsen and Huggins. Applicant respectfully traverses this rejection and submits that the combined teachings of APD, MacIntyre, Mistyurik, Martinsen and Huggins do not disclose or suggest the subject matter recited in amended independent claims 11 and 26 and corresponding dependent claims 12-14, 16-19, 21-25 and 27-31.

Amended independent claim 11 is directed to a label peeling mechanism for peeling labels having a non-adhesive surface and an adhesive surface removably adhered at preselected intervals to a front surface of a backing member of a continuous label strip which is coiled into a roll. Claim 11 requires a first support frame, a second support

frame detachably connected to the first support frame, and a discharge frame pivotally mounted to the second support frame for undergoing pivotal movement between opened and closed positions thereof, the discharge frame having a first discharge opening and a second discharge opening. Claim 11 further requires a first conveying unit mounted on the second support frame for conveying the continuous label strip in a first direction, a label peeling member for contacting a rear surface of the backing member when the continuous label strip is conveyed by the first conveying unit to thereby peel the labels from the front surface of the backing member and convey the peeled labels towards the first discharge opening of the discharge frame, a second conveying unit for pulling the backing member from which the labels have been peeled in a second direction different from the first direction and for conveying the pulled backing member toward the second discharge opening of the discharge frame, and a slack preventing member integral with the discharge frame for suppressing slack of the continuous label strip when the discharge frame is in the closed position, the slack preventing member being disposed opposite to and confronting the non-adhering surface of each of the labels disposed between the first conveying unit and the label peeling member during conveyance of the continuous label strip by the first conveying unit in the first direction. No corresponding

structural and functional combination is disclosed or suggested by the prior art of record.

The primary reference to APD discloses a label peeling mechanism as described in the specification and reiterated herein. As recognized by the Examiner, APD does not disclose or suggest a slack preventing member integral with the discharge frame for suppressing slack of the continuous label strip when the discharge frame is in the closed position, as recited in amended claim 11. Likewise, APD does not disclose or suggest the first and second support frames and their corresponding structural relationship with the discharge frame and the first conveying unit, as recited in amended claim 11.

The Examiner cited the secondary reference to McIntyre for its disclosure of a plate 36 which, according to the Examiner, functions to prevent slack in a web of a label strip. The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a member for preventing slack in the label printer of APD "because McIntyre shows that slack preventing plates are conventional in label printing apparatuses." Applicant respectfully disagrees with the Examiner's contention.

MacIntyre discloses an adhesive-backed element applicator having a discharge frame with side walls 18, 20

forming extensions 32, 34, and a plate 36 defining a slit 38 (Fig. 1-5). A web 16 comprised of a backing member supporting adhesive-backed elements 14 is adapted to pass through the slit 38 and around a rotatable bar 40 which functions as a peeling member for peeling or stripping adhesive-backed elements 14 from the backing member. A conveying unit 30 conveys the web 16 toward the slit 38. A curved tongue member 42 is mounted on the plate 36 above the slit 38 and functions as an applicator means for bringing stripped adhesive-backed elements 14 into contact with a desired surface.

Contrary to the Examiner's contention, the plate 36 in MacIntyre does not function as a slack preventing member for suppressing slack in the web 16, but rather functions to "cover" and presumably "guide" the portion of the web 16 which is adjacent to and is subsequently passed through the slit 38. In the final rejection, the Examiner contends that while functioning as a cover and a guide, the plate 36 of MacIntyre also functions to prevent slack. However, there is absolutely no disclosure (either explicit or inherent) in MacIntyre which would indicate that the plate 36 provides a function of preventing slack in the web 16. The only written description of the plate 36 in MacIntyre is provided in col. 3, lines 27-33) which describes that the plate defines the slit 38 through which the web 16 is adapted to pass. Likewise, the drawings do not show that the plate 36 provides any slack

preventing function. If the Examiner continues to maintain his position that the plate 36 of MacIntyre provides a slack preventing function, applicant respectfully requests that the Examiner specifically point out the disclosure in MacIntyre supporting this position.

Furthermore, even if it were proper to interpret the function of the plate 36 to include a slack preventing function, MacIntyre nevertheless fails to disclose or suggest a slack preventing member which is integral with a discharge frame of the label peeling mechanism, as required by independent claim 11. In this regard, the plate 36 in MacIntyre is clearly not integral with a discharge frame of the applicator.

The Examiner cited Mistyurik as disclosing a hand-held labeler having a pivoting frame 23 which has integral label contacting elements 74, 76, 79 and which facilitates replacement of a label web (Fig. 13). According to the Examiner, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a pivoting discharge frame in the apparatus of APD as modified by MacIntyre in order to facilitate loading of a label web or strip. Applicant respectfully disagrees with the Examiner's contention.

First, it is unclear what structure in the combination of APD and MacIntyre the Examiner is modifying in

view of Mistyurik in order to arrive at the invention recited in independent claim 11. In this regard, even assuming that the plate 36 in MacIntyre functions as a slack preventing member as set forth above, it is unclear what structure in APD's label peeling mechanism is being modified to incorporate such plate disclosed by MacIntyre. Would the plate 36 be incorporated with the discharge frame F1 in APD? If so, in such arrangement, how would the plate 36 provide the function of suppressing slack in the label strip L of APD? Furthermore, how is this resulting combined structure further modified in view of Mistyurik to make the plate 36 of MacIntyre and the discharge frame F1 in APD integral?

Moreover, even if it were proper to further modify the resulting combination of APD and MacIntyre in view of Mistyurik as proposed by the Examiner, the resulting combination would not lead to the claimed invention. In this regard, modification of APD and MacIntyre in view of Mistyurik would only presumably lead to the discharge frame F1 in APD, as modified with the plate 36 of MacIntyre, being pivotally mounted. Again, APD, MacIntyre and Mistyurik do not disclose or suggest, either alone or in combination, a slack preventing member integral with the discharge frame for suppressing slack of the continuous label strip, as recited in independent claim 11.

Moreover, claim 11 has been amended to recite first and second support frames detachably connected to one another. Claim 11 further requires a discharge frame pivotally mounted to the second support frame and a first conveying unit mounted on the second support frame. This structural relationship between the first support frame, second support frame, discharge frame and first conveying unit is not disclosed or suggested by the combined teachings of MacIntyre, Mistyurik and Martinsen. In this regard, in the statement of rejection the Examiner has not identified the structure in MacIntyre, Mistyurik and/or Martinsen corresponding to the first and second support frames. Nevertheless, the references clearly do not disclose or suggest the structural combination of two support frames which are detachably connected to one another, and a discharge frame and a conveying unit mounted on one of these two support frames.

The Examiner cited the references to Huggins and Martinsen for their disclosure of label dispensers having guide rollers and a print head arranged on a pivoting frame (Huggins) and a removable lid having discharge openings (Martinsen). However, Huggins and Martinsen do not disclose or suggest the structural combinations of the label peeling mechanisms recited in independent claim 11, including a slack preventing member integral with a discharge frame, and the

structural combination of the first and second support frame, discharge frame and conveying unit.

Since MacIntyre, Mistyuric, Martinsen and Huggins do not disclose or suggest the structural and functional features recited in amended independent claim 11, they do not cure the deficiencies of APD. Accordingly, one ordinarily skilled in the art would not have been led to modify the references to attain the claimed subject matter.

Amended independent claim 26 is also directed to a label peeling mechanism and requires a first support frame, a second support frame detachably connected to the first support frame, peeling means mounted on the second support frame for peeling adhesive backed labels from a backing member of a continuous label strip, conveying means mounted on the second support frame for conveying the continuous label strip to the peeling means, and a discharge frame pivotally mounted to the second support frame for undergoing pivotal movement between opened and closed positions thereof, the discharge frame having a discharge opening for discharging the adhesive backed labels peeled by the peeling means from the backing member of the continuous label strip. Claim 26 further requires slack preventing means integral with the discharge frame for suppressing slack of the continuous label strip when the discharge frame is in the closed position and as the adhesive

backed labels are peeled by the peeling means from the backing member of the continuous label strip. No corresponding structural and functional combination is disclosed or suggested by the prior art of record as set forth above for amended independent claim 11.

Claims 12-14, 16-19, 21-25 and 27-31 depend on and contain all of the limitations of amended independent claims 11 and 26, respectively, and, therefore, distinguish from the references at least in the same manner as claims 11 and 26.

In view of the foregoing, applicant respectfully requests that the rejection of claims 11-14, 16-19 and 21-31 as being unpatentable over APD in view of MacIntyre, Mistyurik, Martinsen and Huggins be withdrawn.

Claims 15 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over APD in view of MacIntyre, Mistyurik, Martinsen and Huggins and further in view of Rieger. Applicant respectfully traverses this rejection and submits that the combined teachings of APD, MacIntyre, Mistyurik, Martinsen, Huggins and Rieger do not disclose or suggest the subject matter recited in claims 15 and 20.

APD in view of MacIntyre, Mistyurik, Martinsen and Huggins does not disclose or suggest the subject matter recited in amended independent claim 11 as set forth above for the rejection of claims 11-14, 16-19 and 21-31 as being

unpatentable over APD in view of MacIntyre, Mistyurik, Martinsen and Huggins. Claims 15 and 20 depend on and contain all of the limitations of amended independent claim 11 and, therefore, distinguish from the references at least in the same manner as claim 11.

The Examiner contends that Rieger discloses a rod-shaped slack preventing member, as recited in claim 20. Applicant respectfully disagrees with the Examiner's contention.

Rieger discloses a label dispenser 10 including a flat mounting plate 11 having a drive mechanism 12 mounted on one side thereof, and a tape conveying mechanism 14 on the other side thereof (Figs. 1-2). A tape 70 with labels 101 is fed between guide rollers 107 and a peeler plate 100 and then the labels 101 are separated from the tape 70. Contrary to the Examiner's contention, the guide rollers 107 in Rieger do not function as slack preventing members for suppressing slack in the tape 70, but rather function to "convey" and "guide" the tape through the peeler plate 100 (i.e., similar to the conveying and guiding functions of the roller 10 in the conventional label peeling mechanism shown in Fig. 15) to cause the labels 101 to be peeled from the tape 70.

Even if it were proper to interpret the function of the guide rollers 107 to include a slack suppressing function,

Rieger nevertheless fails to disclose or suggest a slack preventing member which is integral with a discharge frame of the label peeling mechanism, as required by independent claim 11, from which claims 15 and 20 depend. In this regard, the guider rollers 107 in Rieger are clearly not integral with a discharge frame of the label peeling mechanism.

Likewise, Rieger does not disclose or suggest a slack preventing member disposed opposite to and confronting the non-adhering surface of each of the labels disposed between the first conveying unit and the label peeling member during conveyance of the continuous label strip by the first conveying unit in the first direction, as recited in claim 11 from which claims 15 and 20 depend. For example, in Rieger the guide rollers 107 are disposed opposite to and confront the peeler plate 101, and thus the label surface which the guide rollers 107 are opposite to and confront is disposed between the guide rollers 107 and the peeler plate 101. Stated otherwise, the surface of the label to which the guide rollers 107 are opposed and confront is not disposed between the tape conveying mechanism 14 (e.g., conveying unit) and the peeler plate 101.

Moreover, Rieger does not disclose or suggest first and second detachably connected support frames and their corresponding structural relationship with the discharge frame

and the first conveying unit, as recited in amended independent claim 11, from which claims 15 and 20 depend.

Since Rieger does not disclose or suggest the foregoing structural and functional features recited in amended independent claim 11, from which claims 15 and 20 depend, it does not cure the deficiencies of APD as modified by MacIntyre, Mistyurik, Martinsen and Huggins. Accordingly, one ordinarily skilled in the art would not have been led to modify the references to attain the claimed subject matter.

In view of the foregoing, applicant respectfully requests that the rejection of claims 15 and 20 as being unpatentable over APD in view of MacIntyre, Mistyurik, Martinsen and Huggins and further in view of Rieger be withdrawn.

Applicant respectfully submits that newly added claims 32-38 also patentably distinguish from the prior art of record.

Claims 32-35 and 36-38 depend on and contain all of the limitations of amended independent claims 11 and 26, respectively, and, therefore, distinguish from the references at least in the same manner as claims 11 and 26.

Moreover, there are separate grounds for patentability of new dependent claims 32-38.

Claims 32 and 36 include the additional limitation that the discharge frame is mounted on the second support frame so that the discharge frame and the second support frame are detachable as a unit from the first support frame. No corresponding structural combination is disclosed or suggested by the prior art of record.

Claims 33-35 and 37-38 are directed to the structure for detachably connecting the first and second support frames to one another. Again, no corresponding structural combination is disclosed or suggested by the prior art of record.

In view of the foregoing amendments and discussion, the application is believed to be in allowable form. Accordingly, favorable reconsideration and allowance of the claims are most respectfully requested.

Respectfully submitted,

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Date